



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Charles J. Stouffer et al Art Unit : 3727
Serial No. : 09/434,507 Examiner : Joseph Man-Fu Moy
Filed : November 5, 1999
Title : HIGH PRESSURE ISOSTATIC PRESSURE BONDING OF HOLLOW
BERYLLIUM PRESSURE VESSELS USING A BONDING FLANGE

Commissioner for Patents
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TECHNOLOGY CENTER R3700

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REPLY TO OFFICE COMMUNICATION OF MARCH 9, 2004 AND COMMENTS
ADDRESSING THE BOARD REMAND DATED OCTOBER 23, 2003

In reply to the Office Communication of March 9, 2004 and to address the Board's request, applicant submits the following remarks.

The Board's Request to Address Gieser

The Board has requested that the Examiner and applicant address Gieser's disclosure relating to welding.¹ The Board correctly points to applicant's disclosure to find that "diffusion bonding" is a process by which work pieces are "joined to one another without using a filler metal and without either of the work pieces melting." See specification at page 4, lines 18-20. The Board expressed apparent confusion caused by a reference within Gieser's disclosure to a welding technique, stating that although Gieser relates to a welding technique, Gieser also states "[t]he welding temperature for the steel members is in the order of 2000 degrees Fahrenheit." See Gieser at col. 3, lines 20 and 21 of Gieser.

Gieser's statement that the welding temperature for the steel members is on the order of 2000 degrees Fahrenheit is not inconsistent with Gieser's disclosure that the steel members are welded by melting. The Board correctly points out that the melting point of certain steel alloys ranges from about 2100 to about 2700 degrees Fahrenheit, as indicated in the *Chemical Engineers' Handbook* at Table 23-S on page 23-38. However, the melting points cited in the

¹ The Board states at page 5 of its decision "we remand the application for the examiner and the appellants to address on the record whether Gieser's above-discussed disclosures indicate that Gieser's welding is melt welding or diffusion welding."

Handbook that range from 2100-2700 degrees Fahrenheit are on the order of 2000 degrees Fahrenheit.

Gieser's statement at col. 3, lines 20 and 21 includes the phrase "in the order of," thus indicating that the value 2000 degrees Fahrenheit is merely an estimate of the welding temperature of steel and it does not state the actual temperature at which the steel is welded. Gieser's phrase ("in the order of") captures the fact that the melting point of various types of steel has a broad temperature range, which is further evidenced by Table 23-S in the *Handbook* provided by the Board. Moreover, the phrase "on the order of" is commonly used in scientific research if precision is not necessary, or if it is only necessary to provide a rough estimate of a value. For the Examiner's reference, applicant provides two excerpts from first year college science textbooks (*Chemical Principles* and *University Physics*) that describe the long-standing use of the phrase "on the order of" and the long-standing use of significant digits to show precision in values.

For at least these reasons, applicant submits that the disclosure of Gieser describes welding of steel and nothing in Gieser suggests otherwise. Accordingly, Gieser fails to describe or suggest a diffusion bond and nothing in the record establishes otherwise.

The Examiner's Analysis of Gieser's Disclosure

It is noteworthy that the Board did not find diffusion bonding in Gieser. Rather, the Board found that Gieser generally describes welding. The only passage relied on by the Board to support its contention that Gieser includes an inconsistent disclosure on welding is the passage relating to the welding temperature being on the order of 2000 degrees Fahrenheit. However, as was shown above, this passage is entirely consistent with Gieser's welding technique. Therefore, absent some other information within Gieser to establish a showing a diffusion bonding, the claims should be allowed over Gieser.

In the Office Communication of March 9, 2004, the Examiner states "[i]t is examiner's position that Gieser's welding is diffusion welding." Such a statement fails to address the Board's request on the apparent inconsistency in Gieser's disclosure. Moreover, such a

statement, standing alone, provides no support for the Examiner's contention that Gieser discloses diffusion bonding. To advance prosecution, it would be helpful to understand how Gieser, which fails to mention "diffusion bonding," is believed to disclose diffusion bonding. Absent such a showing or indication of rationale, applicant requests withdrawal of the rejection reliant upon Gieser.

In fact, in the absence of such a showing in support of the rejection of record, the Examiner has failed to meet his burden to show that each and every element of the claims is found in Gieser. In particular, the Examiner has not shown that diffusion bonding is found in Gieser. Accordingly, the claims are allowable over Gieser.

Remand to the Examiner to Search

The Board remanded the application to the Examiner to search the diffusion bonding art. Applicant respectfully requests that the Examiner address the Board's request in a timely fashion.

Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: April 7, 2004

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